Remarks

The following remarks are responsive to the Office Action of June 26, 2008.

At the time of the Office Action, claims 1-15 were pending. Claims 1, 3 and 10-15 were rejected under 35 U.S.C. §102(e) as anticipated by Ashour et al. (U.S. Patent No. 6,459,797). In addition, claims 1, 3, 4, 9 and 13-15 were rejected under 35 U.S.C. §102(e) as anticipated by Hashimoto et al. (U.S. Patent No. 7,386,139) or Abel et al. (U.S. Patent No. 5,596,644). Claims 6-8 and 10 were rejected under 35 U.S.C. §102(e) as anticipated by Abel et al. Claims 2 and 10-12 were rejected under 35 U.S.C. §103(a) as obvious over Hashimoto et al., and further in view of Ashour et al. Claims 6 and 8 were rejected under 35 U.S.C. §103(a) as obvious over Hashimoto et al., and further in view of Abel et al. Claim 5 was rejected under 35 U.S.C. §103(a) as obvious over Hashimoto et al.

These rejections are respectfully traversed.

Applicants respectfully submit that the claimed embodiments of the present invention relate to acoustic synthesis and acoustic spatialization. More particularly, the claimed embodiments of the present invention provide a method, module, computer program and communication terminal that combines both synthesis and spatialization, as described, for example, in paragraph 0031 of published U.S. Patent Application No. 2007/0160216 corresponding to the present application (hereinafter "the corresponding published application"). As further described in paragraphs 0051-0052 of the corresponding published application, as known in the art, acoustic systems provide sound synthesis and sound spatialization in separate processes. In particular, sound synthesis is carried out, and then sound spatialization is performed. As described in paragraph 0053, these types of systems are complex and require much processing time. Thus, they are not practical in time critic applications or in devices with limited processing capabilities.

The embodiments of the present invention thus provide a solution to these drawbacks of the known systems as described, for example, in paragraphs 0003 and 0054-0056 of the

corresponding published application. Specifically, in the embodiments of the present invention, synthesis and spatialization are closely associated, and are thus performed together as explained, for example, in paragraphs 0157-0158 of the corresponding published application. Applicants note that independent claims 1 and 13-15 recite a joint step of determining parameters including at least one gain, for defining, at the same time, a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin.

In the rejection of claims 1, 3 and 10-15 based on Ashour, the Examiner contends that Ashour teaches each and every feature recited in these claims. However, Applicants respectfully submit that Ashour teaches a conventional method as described in the specification and discussed above, since the Ashour technique determines spatialization of sounds that already have been synthesized. That is, Ashour discloses a personal computer adapted to function as an audio synthesizer (column 2, line 30). The computer comprises an audio adapter 160 for audio synthesis (column 2, lines 38-48). The adapter comprises a MIDI synthesizer (column 2, line 53) for generating sounds that represent a number of instruments and which are then processed in a control digital mixer so as to be spatialized (column 3, lines 10-31). This is also clearly shown in Figure 2 of Ashour, in which the synthesizer 210 is separated from the mixer 220.

Hence, Applicants submit that since Ashour discloses spatialization apart from synthesis, Ashour does not anticipate the embodiments of the present invention even as recited in the independent claims. Therefore, all claims should be allowable over Ashour.

Concerning the rejection of claims 1, 3-4, 9 and 13-15 based on Hashimoto, Applicants respectfully submit that the teachings of Hashimoto do not pertain to sound synthesis. Rather, Hashimoto discloses reproducing and processing an audio signal so that two simultaneous listeners may feel the sound in a similar manner (see the Abstract, and column 3, lines 6-12). Moreover, as taught by Hashimoto, the sound signal is always received from an external device and then processed (see, e.g., column 7, line 6 through column 8, line 7). Accordingly, since Hashimoto does not disclose sound synthesis, Hashimoto cannot disclose or suggest combining synthesis and spatialization. Accordingly, Hashimoto cannot anticipate even independent claims 1 and 13-15.

With regard to the rejection of claims 1, 3, 4, 6-8, 9, 10 and 13-15 based on Abel, Applicants respectfully submit that Abel does not disclose a joint step for synthesis and spatialization. Rather, Abel discloses a method for spatializing sound fields using filters and gains adapted in response to sound source location or listener position (see the Abstract). The Abel method is thus aimed at spatializing an audio source in an efficient manner (see column 4, line 55 through column 5, line 5).

That is, Abel discloses generating an audio signal, generating a position signal representing an apparent location of the audio source, filtering the audio signal and applying a gain which is determined according to the position signal (see, column 5, lines 10-20). Thus, the gains disclosed by Abel only reflect the position of the source, and do not define the audio source since it is already generated when the gains are applied. Accordingly, Abel cannot anticipate the embodiments of the present invention even as recited in independent claims 1 and 13-15.

Concerning the rejection of claims 2 and 10-12 as being obvious over Hashimoto in view of Ashour, the rejection of claims 6 and 8 as being obvious over Hashimoto in view of Abel, and the rejection of claim 5 as being obvious over Hashimoto, Applicants respectfully submit that as discussed above, none of the references disclose or suggest a joint step of determining parameters for both synthesis and spatialization of a sound. Moreover, none of the references disclose nor suggest jointly determining a gain defining the nature of an audio source and a position of the audio source. Accordingly, for at least these reasons, Applicants submit that one skilled in the art would not have found the embodiments of the present invention even as recited in independent claims 1 and 13-15 obvious in view of the cited references taken alone or in combination. Hence, all claims should be allowable.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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